



ITW

**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of:

MICHAEL FRIEDEMANN  
VOLKER KAHLERT

Serial No.: 10/624,420

Filed: July 22, 2003

For: METHOD OF FORMING A  
CONDUCTIVE BARRIER LAYER  
HAVING IMPROVED COVERAGE  
WITHIN CRITICAL OPENINGS

Group Art Unit: 1753

Examiner: Unknown

Att;y Docket: 2000.108100/DE0346

Customer No.: 23720

**INFORMATION DISCLOSURE STATEMENT**

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

| CERTIFICATE OF MAILING<br>37 C.F.R. 1.8   |                               |
|---|-------------------------------|
| I hereby certify that this correspondence is being deposited with the U.S. Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date below: |                               |
| May 12, 2004<br>Date  | <i>Mary Paul</i><br>Signature |

In compliance with the duty of disclosure under 37 C.F.R. § 1.56, it is respectfully requested that this Information Disclosure Statement be entered and the documents listed on attached Form PTO-1449 be considered by the Examiner and made of record. Because the filing date of the present application is after June 30, 2003, copies of the listed U.S. patents are not included.


In accordance with 37 C.F.R §§ 1.97(g),(h), this Information Disclosure Statement is not to be construed as a representation that a search has been made, and is not to be construed to be an admission that the information cited is, or is considered to be, material to patentability as defined in 37 C.F.R. § 1.56(b).

In accordance with 37 C.F.R § 1.97(e)(1), Applicants hereby certify that each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the present statement, as evidenced by the date of the enclosed letter from the German associate.

Applicants respectfully request that the listed documents be made of record in the present case.

Respectfully submitted,

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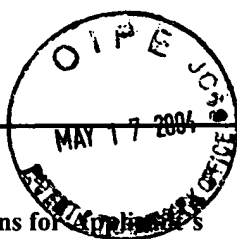
ATTORNEY FOR APPLICANTS

Form PTO-1449 (modified)

List of Patents and Publications for Applicant's

## INFORMATION DISCLOSURE STATEMENT

(Use several sheets if necessary)

Atty. Docket No.  
2000.108100/DE0346Serial No.  
10/624,420Applicant  
Michael Friedemann and Volker KahlertFiling Date:  
July 22, 2003Group:  
1753U.S. Patent Documents  
*See Page 1*Foreign Patent Documents  
*See Page 1*Other Art  
*See Page 1*

## U.S. Patent Documents

| Exam. Init. | Ref. Des. | Document Number | Date     | Name                      | Class | Sub Class | Filing Date of App. |
|-------------|-----------|-----------------|----------|---------------------------|-------|-----------|---------------------|
|             | A1        | 5,963,827       | 10/05/99 | Enomoto <i>et al.</i>     | 438   | 629       |                     |
|             | A2        | 6,306,732 B1    | 10/23/01 | Brown                     | 438   | 468       |                     |
|             | A3        | 6,365,510       | 04/02/02 | Schmidbauer <i>et al.</i> | 438   | 675       |                     |
|             | A4        | 6,380,058 B2    | 04/30/02 | Manabe <i>et al.</i>      | 438   | 597       |                     |
|             | A5        |                 |          |                           |       |           |                     |

## Foreign Patent Documents

| Exam. Init. | Ref. Des. | Document Number | Date    | Country | Class | Sub Class | Translation Yes/No |
|-------------|-----------|-----------------|---------|---------|-------|-----------|--------------------|
|             | B1        | WO 03/001590 A2 | 1/03/03 | PCT     | H01L  | 21/768    | Yes                |
|             | B2        |                 |         |         |       |           |                    |
|             | B3        |                 |         |         |       |           |                    |

## Other Art (Including Author, Title, Date Pertinent Pages, Etc.)

| Exam. Init. | Ref. Des. | Citation  |
|-------------|-----------|---|
|             | C1        | Rosnagel <i>et al.</i> , "Thin, high atomic weight refractory film deposition for diffusion barrier, adhesion layer, and seed layer applications," <i>J. Vac. Sci. Technol.</i> , 143:1819027, 1996 |
|             | C2        | Zhong and Hopwood, "Ionized deposition into high aspect ratio vias and trenches," <i>J. Vac. Sci. Technol.</i> , 17:405-09, 1999  |
|             | C3        |   |

EXAMINER:

DATE CONSIDERED:

EXAMINER: INITIAL IF REFERENCE CONSIDERED, WHETHER OR NOT CITATION IS IN CONFORMANCE WITH MPEP609; DRAW LINE THROUGH CITATION IF NOT IN CONFORMANCE AND NOT CONSIDERED. INCLUDE COPY OF THIS FORM WITH NEXT COMMUNICATION TO APPLICANT.